

57. (Amended) The apparatus of claim 51, wherein the ions undergo redox reaction at the predefined regions of the substrate to form the array of materials [in which at least two members of the array of materials are different].

REMARKS

Applicant is in receipt of a Final Office Action mailed June 24, 1999. In order to focus issues for appeal, Applicants cancel claims 1, 5-15, 23-25, 39, 41, and 42 without prejudice or disclaimer, and amend claims 40, 43, 45-47, 51, and 57. In a prior response (paper no. 10), Applicants cancelled claim 2. The Examiner has withdrawn from consideration claims 3, 4, 16-22, 26-38, and 58-61. Accordingly, claim 40, and claims 43-57 are pending in the present application. Applicants submit that entry of the amendment is proper because it raises no new issues requiring further search and because the amended claims are fully supported by the specification, as filed.

By action taken here, Applicants in no way intend to surrender any range of equivalents beyond that needed to patentably distinguish the claimed invention as a whole over the prior art. Applicants expressly reserve all such equivalents that may fall in the range between Applicants' literal claim recitations and combinations taught or suggested by the prior art.

I. Telephone Interview

Applicants thank Examiner Ricigliano for speaking with Applicants' representative on September 24, 1999. Applicants' representative and the Examiner briefly discussed a proposed amendment to claim 43. In addition, the Examiner informed Applicants' representative of two references that the Examiner recently uncovered which may affect patentability: U.S. Patent 5605662, issued to Heller et al., and U.S. Patent 5846708, issued to Hollis et al. The Examiner noted that he would enter both references into the record.

II. Objections and Rejections Based on Cancelled Claims 1, 5-15, 23-25, 39, 41, and 42

As noted above, Applicants have cancelled claims 1, 5-15, 23-25, 39, 41, and 42, without prejudice or disclaimer, in order to focus issues for appeal. Therefore, all objections and rejections based on these claims are now moot. Although Applicants have cancelled claims 1 and 39, Applicants have incorporated certain limitations of claims 1 and 39 into

claim 43. Therefore, Applicants will discuss rejections of claims 1 and 39 only as they relate to claim 43.

III. Rejection of Claims 1, 39, 40, 44, and 45 Under 35 U.S.C. §112 ¶1

The Final Office Action rejected claims 1, 39, 40, 44, and 45, under 35 U.S.C. §112, first paragraph, as being new matter. Specifically, the Final Office Action stated that in the prior amendment (paper no. 10), Applicants introduced changes not supported by the disclosure as originally filed including:

i) The recitation in claim 1 that the materials under go chemical reaction at the predefined regions and that they can be "inorganic" compounds or "electro-polymerizable monomers."

ii) The recitation in claim 44 that the electrodes are embedded within the substrate.

iii) The recitation in claim 45 that the electrodes are disposed on a surface of the substrate.

Applicants submit that each of these limitations is fully supported by the specification, as filed. With respect to the first set of limitations, claim 43 recites that "the ions undergo chemical reaction at the predefined regions forming the array of materials" in which "all members of the array of materials are inorganic." Both limitations are disclosed in the specification. As discussed in the Background of the Invention, the present invention is generally concerned with combinatorial synthesis and screening of "inorganics, intermetallics, metal alloys, and ceramics." App. at page 3, lines 24-29 (emphasis added). Moreover, the specification provides numerous examples of the preparation of inorganic arrays. Example 1, for instance, demonstrates how ions of copper, zinc, nickel, and iron are deposited on 16 platinum electrodes (predefined regions) disposed on a silicon dioxide substrate. App. at page 16, line 20 - page 17, line 11. Example 2 (group II-VI based phosphors), Example 3 (transition metal mixtures), and Example 5 (Sn-Ru-Pt alloys), also describe fabrication of inorganic arrays. Furthermore, in each of these examples, deposition occurs because metal ions are reduced—undergo a chemical reaction—at the surface of the platinum electrodes. This process is generally described on page 10, lines 18-21 of the specification: "Deposition and oxidation or reduction of the charged species from the fluid (or vapor stream) occurs onto

those library elements [electrodes] with sufficient electrical potential to overcome the requisite oxidation or reduction potential (and associated overpotentials).”

With respect to the second and third sets of limitations, claims 44 and 45 recite that the electrodes are, respectively “cmbedded within” and “disposed on” the substrate. Both limitations are fully disclosed. For example, page 5, line 17 of the specification discloses that the “spatially varying electric potential may be applied to the substrate by an array of spatially addressable working electrodes coupled to or embedded within the substrate.” Furthermore, as noted above, Example 1 discloses that “an array of 16 platinum electrodes were fabricated on a silicon dioxide substrate.” App. at page 16, lines 22-23. See also Fig. 1 and 2, which show electrodes 105, 210 embedded within and on a substrate 110, 205.

IV. Rejection of Claims 43-57 Under 35 U.S.C. §112 ¶2

Claims 43-57 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. With respect to independent claims 43 and 51, the Examiner stated that the requirement that “at least two members of the array are different” is vague and indefinite because “it is unclear what applicants intend by different.” As suggested by the Examiner in the Final Office Action, Applicants have amended claims 43 and 51 to recite that “at least two members of the array of materials have different compositions.” This limitation is fully supported by the specification. For example, on page 10, lines 21-23 of the specification, Applicants note that, generally, by “changing the compositions of the ionic solutions (or vapor stream) and varying the relative voltages, regions of varying thickness and composition can be achieved over the entire library.” In particular, Fig. 12 of Example 1 and Table I of Example 5 show arrays comprised of sixteen different compositions.

The Final Office Action also states that claim 46 recites that the substrate provides a substantially continuous potential between predefined regions. According to the office action, this limitation is vague and indefinite, “as it is unclear if this is intended to mean the potential is the same or if the potential varies substantially across the predefined regions.” Applicants disagree that the claim is vague and indefinite because claim 46 recites that the substrate is a “resistive material,” which prevents the electrical potential from being the same across the substrate surface. However, to clarify the claim, Applicants have amended claim 46 to recite that the electrical potential “varies” between adjacent predefined regions. This

limitation is fully described in the specification. See, for example, page 12, lines 25-30 and Fig. 5 and 6.

V. Rejection of Claims 40, 43-45, 47, 48, and 50 Under 35 U.S.C. §102/103

Of the claims currently pending, the Final Office Action rejected claims 40, 43-45, 47, 48, and 50 under 35 U.S.C. §102/103 as being anticipated by, or obvious in view of, Southern (claims 43, 47, 50), Southern and Hunter et al. (claim 40), Hunter et al. (claim 43, 50), Liu et al. (claims 43-45, 48, 50), and Borrelli et al. (40). The Final Office Action did not reject claims 46, 49, and 51-57 based on the cited prior art.

Applicants submit that claim 43, as amended, defines over the cited prior art. As mentioned above, Applicants have amended independent claim 43 to include most of the limitations of claim 39. Specifically, claim 43 now includes "a detector" for measuring an electrical property of each of the members of the array of materials, and requires that the spatially addressable electrodes are "electrically connected" to the detector. In addition, Applicants have amended claim 43 to recite that "all members of the array of materials are inorganic." None of the prior art of record discloses or suggests these limitations. Therefore, Southern, Hunter et al., Liu et al., and Borelli et al. do not anticipate or render obvious claim 43 or claims 40, 44, 45, 47, 48 and 50, which depend on claim 43.

VI. Conclusion

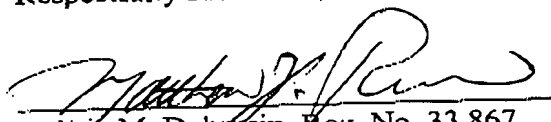
In view of the foregoing, Applicants respectfully submit that claim 40, and claims 43-57, as amended, distinguish over the prior art of record and are in condition for allowance. Therefore, Applicants respectfully request withdrawal of final rejection. If the Examiner has any questions, he is encouraged to telephone the undersigned.

It is believed that no fees are due with respect to this paper. However, if additional fees are required in connection with the filing of this paper, permission is given to charge account number 50-0496.

Respectfully submitted,

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